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ALAIN ROCHEMONT, FG7AR--Manigot, St. Martin

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RTTY JOURNAL

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* **FREE BROCHURES AND INFORMATION** *

The IRL-1000 is a well designed terminal unit, and in conjunction with the new AEA-MBA-TOR software and a Commodore 64 computer, it makes an outstanding data communications package for CW, Baudot, ASCII and AMTOR.

The only modification to the IRL-1000 is to disable the keyboard operated PTT to allow faster transmit-receive switching for AMTOR and Morse operation. To disable the keyboard PTT, clip one end of D24 and move the diode so the clipped leads will not touch. If you should want to restore the keyboard PTT later, push the diode back and a small solder blob across the leads will do the job.

A small CW keying circuit is necessary for Morse transmit. The IRL is used as before in ASCII and Baudot and operation on AMTOR requires the wide filter position, as the baud rate is too high for the narrow position. Some practice tuning AMTOR Mode A will probably be necessary. A scope is very helpful.

The IRL was not designed for use on CW, but can be made to operate. Start with the threshold control fully CCW and in the FSK position. Advance the input level until the Mark and Space LEDs flicker, then switch to Space only operation.

Your receiver or transceiver will need passband tuning to get the CW pitch to 2295Hz. also the RIT should be set about 1500Hz high or the receive and transmit frequencies will be offset.

The cable connections for the Commodore 64 and the CW keying circuit are shown in Figures 1 and 2. next month.

AWARDS

DXCC # 101 to: Tomohiko Kawaguchi, JH2PDS, 4 April 1984.

DXCC # 102 To: Leo Small, K4AGC, 20 May 1984.

DXCC # 103 JOHN WOOD, WB2VTD, 1 June 1984.

DXCC endorsement #200 I5FLN, Luciano Fusari.. 1 June 1984.

By Mike Lamb, N7ML
From CQ Magazine November 1983.
with permission.

There have already been articles written on the technical aspects of AMTOR. This article will deal only with the hands-on operation of AMTOR.

BACKGROUND

For the first 25 years of my Amateur radio activity I concentrated my operations mainly in the CW bands. The original reason was rather simple CW would get through when all other modes failed. But not anymore! I have since personally enjoyed error-free contacts on AMTOR under conditions that would have been difficult, if not impossible, for CW. It is hard to believe until you experience it for yourself.

F.E.C. AND A.R.Q.

AMTOR (Amateur Teleprinting Over Radio) is a general term for two sub-set modes, namely F.E.C. (Forward Error Correcting) and A.R.Q. (Automatic Repeat). Most, if not all, AMTOR terminal units have designed to include capabilities for both modes. Each mode has its own advantages and disadvantages. The F.E.C. mode will enable far less communication error than normal Baudot or ASCII RTTY, but the A.R.Q. mode is even more accurate. F.E.C. mode is similar to normal Baudot or ASCII RTTY in that the Information Sending Station (I.S.S.) does not receive until his message transmission is completed. F.E.C. mode is useful for traffic nets, CQ's and QST bulletins which are not easily adapted to A.R.Q. mode. F.E.C. mode involves a repeat of each character sent. The repeat character is always sent several characters later so that a long static burst or fading does not destroy both the original and repeat characters.

A.R.Q. mode involves a handshake operation between the I.S.S. and the Information Receiving Station (I.R.S.) This mode results in the familiar "chirp chirp" sound that is so commonly associated with AMTOR. In A.R.Q. mode the two stations in contact must

establish precise phase lock between their signals, or contact will not be made. This is, of course, all handled automatically by the computerized AMTOR controller, which of necessity contains some very sophisticated real time operating software. Other stations may monitor A.R.Q. QSO's, but they will not be able to break easily or join in a three-way contact.

In A.Q.R. mode the I.S.S. will transmit his message in three character blocks. The I.R.S. computer analyses the three characters to conform to an expected 4:3 mathematical ratio of mark and space bits. The 4:3 ratio represents 4 pulses of one polarity and three pulses of the opposite polarity. If they do conform, one character will be sent by the I.R.S. to request the next block of characters be transmitted by the I.S.S. If an error is detected, a request for repeat (RQ) will be sent to the I.S.S. until a correct bit ratio is received.

Obviously, if the signals fade below the noise level or are obliterated for a time by QRM, the data rate (message transmission speed) will slow down. However, the important thing is that the message will get through! (What good is it to have a high data rate if it turns into garble at the receiving station?)

GETTING ON AMTOR

The first obvious step to getting on this exciting new mode is to get some AMTOR equipment. At present there are at least three commercially available units on the market. These units are all built by reputable manufacturers, and I am sure that detailed product reviews are appearing in the Amateur Radio Journals.

THIS ARTICLE WILL BE CONTINUED IN THE NEXT ISSUE OF THE RTTY JOURNAL. LOOK ALSO FOR THE SCHEMATICS FOR THE ARTICLE "IRL-1000 ON AMTOR" IN THE NEXT ISSUE. EVEN EXPANDED WE HAD NO MORE ROOM--SORRY FOR ANY INCONVENIENCE THIS WILL CAUSE. de DEE, N6ELP

DX

JOE WOOD, AJØX

POB 84

LAUREL, MS 39440

Time to say hello and thanks again for the many notes and "bytes" of information that help keep us informed as to what is going on in the DX World. It is difficult to sit here and try to estimate how many hours are consumed each month by each of us, in search of that elusive country. In the course of doing so, each of us run across other DX that may not be of interest at the moment but certainly may be of interest to your fellow DX'er. If this occurs, jot down the information, callsign, time, frequency, QSL route and any other pertinent info, and send it along to me so that it can be shared. The method need not be a formal letter; simply a card or scrap of paper will do the job. Many of the notes received here are written on the back of QSL cards. The information is edited and placed on a master list that is kept current on a daily basis. This column will be as interesting as you help make it, so participate and I assure you that it will be appreciated, not only by me, but by your fellow DX'er too!

DAYTON....What can I say? If you missed that one, it surely your loss. A great massing of fellow Hams, commercial exhibits, information forums and the ever-loved 'flea market'. My only comment is that the Hamvention should have started on Monday so that I would not have missed a single thing. Rumor has it that at least 25,000 of us walked through the entrance over that two and one half day period. The RTTY FORUM was directed by Mr. Bill Henry, K9GWT. Dick Uhrmacher, KOVKH, Dee Crumpton, N6ELP and yours truly were honored speakers. Dick spoke on RTTY mailboxes and RBBS, Dee took care of RTTY in general, and I had a shot at RTTY DX. [We were all good too! de N6ELP]. The attendance at the RTTY FORUM was approximately three to four hundred and included some 'real' DX operators as well as a goodly share of those just getting started in RTTY. It is always

a pleasure to have our 'out of country' friends join us in such a gathering and a delight to meet them on an eye to eye basis. Such an occasion is not easily forgotten and I personally hope to meet them on a year to year basis. The amount of new gear that is becoming available to us along with the items offered in the flea market is almost indescribable. You will just have to see for yourself next year! The Dayton Hamvention has truly become International and if you would like to see the faces behind the keyboard of some of those distant stations, Dayton is certainly the place to do so. Hope to see each of you there next time around!

Last time I mentioned that Spring had arrived in the deep South. Well, it did not stick around too long as it hurriedly was replaced by Summer. Did get a chance to rework the wire sloper for 80 meters, the 40 meter KLM dipole and, in anticipation of 160 meter RTTY, put up a wire sloper for that band. I would like to have a couple of Beverage antennas for 160 receiving, but with the amount of wire and space required for such a system it is out of the question at the present location. A beverage antenna is certainly the answer to noise problems on 160 and is a worthwhile addition to the station equipment if you can 'swing' it.

Speaking of additions, I recently acquired an Icom-751 transceiver for RTTY use. I installed the high stability reference crystal (TCXO) and found the frequency stability of the transceiver over a 24 hour period using a commercial frequency and at ambient room temperature only found a 4 Hertz maximum frequency shift in the IC-751. The dynamic range of the 751 is 105 DB and that really helps to reduce front end overload on those close 'loud' stations. I am using it in the AFSK (lower sideband) with an active filter in the audio line to the demodulator. This type of fil-

tering is effective but perhaps not as much as it would be in the FSK mode and the 250 Hertz filter. If anyone out there has tried that mode I will be happy to hear from them. Apart from that I find the unit to be an excellent addition to the station and sure does make operating a lot more pleasurable.

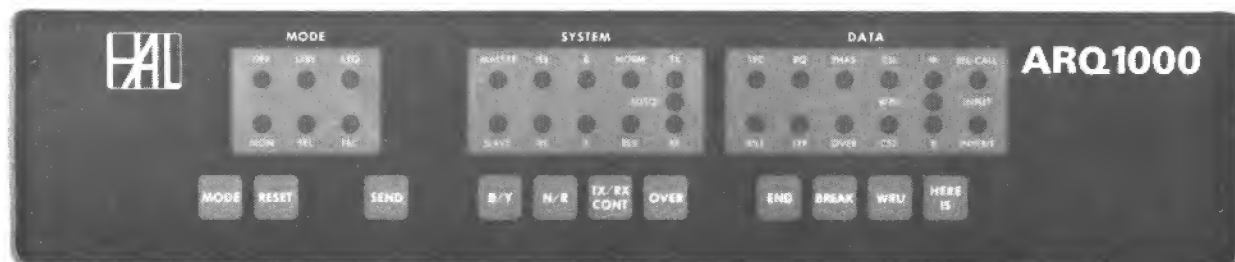
CONGRATULATIONS go out to SM5FUG, JR2CFD, PY6SL, WB2CJL, W9ZR, W6MI and KA7BDB. These stations just made the ARRL DX Century Club RTTY membership list, and with the new ruling by the group at ARRL, will be able to endorse that award after August 1, 1984. A number of DXCC members must be holding their breath waiting for that date so they can get their cards in for endorsement. A word of caution is in order...QSLs should be mailed to ARRL so that they arrive on or after the effective date. If they arrive beforehand, they may be returned to you without any processing having taken place. A real waste of time and money on your part if that occurs. In reviewing the new ruling regarding the endorsements, it is noted by this writer, that no, repeat: no provision has been made at this time for Honor Roll listing of those that have (?) or will have totals that are within ten contacts of the maximum number of countries listed in the ARRL countries list. This may not bear any importance at this time, but is something that may need to be addressed at some point in the future.

On to the goodies!!!!

DX - Heard, Worked and How to get cards to "some of them."

FK8AB	14.091	1150Z	Via buro/CB
9K2DN	21.080	1740Z	Via: POB
25975, Safat Kenuit, Kuwait.			
5R8AL	21.086	1310Z	Via WA4VDE
T77V	21.083	1218Z	Via:POB 101
San Marino.			
4Z4NUT	21.092	1159Z	Via:WB2FTK.
UK3ACR	14.099	1307Z	Via POB 88,
Moscow, USSR.			

AMTOR RTTY



HAL is proud to announce the ARQ1000 code converter. This terminal not only supports the AMTOR amateur codes, but meets ALL of the commercial requirements of CCIR Recommendation 476-2. The ARQ1000 can be used with present and previous generation HAL RTTY products. In fact, any Baudot or ASCII full duplex terminal at data rates from 45 to 300 baud may be used with the ARQ1000. Some of the outstanding features of the ARQ1000 are:

- Send/receive error-free ARQ, FEC, and SEL-FEC modes
- Automatic listen mode for ARQ, FEC, and SEL-FEC
- Meets commercial requirements of CCIR 476-2
- By-pass mode for normal RTTY without changing cables
- Programmable ARQ access code, SEL-CAL code and WRU
- Programmable codes stored in non-volatile EEPROM
- Keyboard control of normal send/receive functions
- 30 Front panel indicators and 11 control switches
- Interfacing for loop, RS232, or TTL I/O
- "Handshaking" control for printer and keyboard or tape
- Self-contained with 120/240V, 50/60 Hz power supply
- Cabinet matches style and size of CT2200 and CT2100
- Table or rack mounting
- Built-in DM170 modem option available
- Encryption option available for commercial users
- 8½" x 17" x 10½"

The ARQ1000 is commercial-quality equipment that will give you the outstanding performance you expect from a HAL product. Write for full details and specifications of the ARQ1000.

BY POPULAR REQUEST



By popular request — the new CT2200. Our slogan is "When Our Customers Talk, We Listen" — and we have been listening. The CT2200 includes these often requested features:

- New AMTOR connections for use with ARQ1000
- Keyboard programming of all 8 "brag-tape" messages
- Programmable selective call code
- Expanded HERE IS storage for a total of 88 characters
- Non-volatile storage of HERE IS, "brag-tape," and SEL-CAL code
- 3½" x 17" x 10½"

All of the proven CT2100 features are retained. Some of these features are:

- Tuning scope outputs (a MUST for AMTOR)
- Built-in demodulator for high tones, "103", or "202" modem tones
- 36 or 72 character display lines
- 2 pages of 72 character lines or 4 pages of 36 character lines
- Split screen or full screen display
- Baudot or ASCII, 45 to 1200 baud
- Full or half duplex
- Morse code send/receive at 5 to 99 wpm
- Send/receive loop connection
- Automatic transmit/receive control (KOS)
- Audio, RS232C, or Loop I/O
- On-screen tuning and status indicators
- Clearly labeled front panel switches, not obscure keyboard key combinations
- Separate convenient lap-size keyboard
- Internal 120/240, 50/60 Hz power supply
- Attractive shielded metal cabinet

In addition, an update kit is available so that all CT2100 owners can update their CT2100's to include CT2200 features. The kit even includes a new CT2200 front panel! Rather than making a proven product obsolete, HAL put even more behind the buttons. Pick up a CT2200 at your favorite HAL dealer and join the RTTY fun. Write for our full RTTY catalog.



HAL COMMUNICATIONS CORP.
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DX COLUMN CONTINUED

LX9CR 14.093 2136Z Via: LX buro
 HP1AW 21.082 1715Z Via:Callbook
 YB1BG 14.094 1131Z Via:Callbook
 VK9NS 21.090 0200Z Via:Callbook
 JY9IU 21.087 1230Z Via:HB9AHA.
 9Y4GX 14.091 0135Z Via:W7GVF.
 FM7BX 14.091 2304Z Via:E.H.Zys-
 set, 205 Eastern Ave., St. Cloud,
 Florida 32769.
 C31NP 14.089 0133Z Via: EA3BNX.
 9M2MK 14.092 1045Z Via:Callbook
 5Z4RT 21.095 1135Z Via:Sandy
 Bauer, POB 6N, Tegernheim, West
 Germany.
 EA6KY 21.092 1733Z Via:POB 54
 Mahon, Menorca, Balaeric Islands.
 PJ2MI 14.094 1103Z Via:Callbook
 HK2DUK 14.092 1127Z Via:POB 1500
 Cucuta, Columbia.
 ZP5JAL 14.080 1056Z Via:POB 1311
 Asuncion, Paraguay.
 FK8BK 14.083 1107Z Via:Callbook
 9M2DW 21.094 1626Z Via:Callbook
 ZL8AFH 21.090 2304Z Via:168 Mac-
 kenzie Ave., Christchurch, New Zea-
 land.
 EA9JE 14.087 0150Z VIA:Callbook
 9H1EY 14.084 1051Z Via: Villa
 Earland, Charghur, Malta.
 SV5TH 14.083 0110Z Via:POB 282
 Rhodes, Dodecanese Islands.
 KD7P/NH2 14.095 1055Z Via: Bob
 Winters, 58 Betel Palm, S.Finegayn
 NCWP, FPO, SF, CA 96630.
 9H1GD 14.090 2130Z Via:M.A.R.L.
 POB 575, Valleta, Malta.
 KL7PG 14.090 1935Z Via:Callbook
 KA0CVR/SV 14.092 1030Z Via:WB4TDB.
 OX5FG 14.095 1355Z Via:POB 177,
 3920 Julianehaas, Greenland.
 T2ITA 14.099 0612Z Via:Callbook

Anyone out there have any informa-
 tion on C30BAF? or 6Y5MC? This is a
 repeat of the last issue as MAS,
 W8WYK and Carl, K6WZ are still in
 need of that info. Also, comes a
 question from George, W1DA, regarding
 Russian RTTY activity. He says that
 he has only worked UT5 and U05 and
 wonders if the other areas of Russia
 are ever active and if so, when is
 the best time for contacting them.
 In addition, he asks if the Central
 Radio Club ever sponsors a RTTY con-
 test to augment activity. Answers to
 these queries can be sent to me and
 I will see that they get to the in-
 terested parties, who will no doubt

appreciate your help.

JR2CFD, Mikio is still looking for
 a South American station for 40 meter
 WAC. Our Canadian neighbors would
 like for all of us to look above 7100
 KHz. now and then, especially during
 contest times. VE cannot yet operate
 RTTY between 7050 and 7100 KHz. Taka,
 JA1JDD tells us that JA1ACB sent a
 Tono to AP2KS, Pakistan. Walt, ND6F
 from El Toro, CA was talking to Taka
 and inquired about any info on RTTY
 operations. Taka said to look for Dee
 on RTTY and get the RTTY JOURNAL from
 her. Walt went out to make some tea,
 came back and there was Dee, Talking
 to an Australian station. He got the
 info. Activity from Kermadec is on
 the upswing with ZL8AFH, Warwick re-
 ported on several bands. I received
 a very nice letter from Juan, LU4EGE
 he is very active in the DX world and
 is keeping his eyes glued to the CRT
 for the very latest DX info for the
 Spanish edition of the RTTY JOURNAL.
 We are all pleased to know that RTTY
 is a growing mode in South America.
 (His first issue of the Spanish RTTY
 JOURNAL has been mailed). Juan is
 presently on 14.072 Auto-Selcal LEGE
 and LDLE. If you wish to drop Juan
 a note regarding DX, I'm sure you can
 reach him on that frequency.

Carl, K6WZ, is of the opinion that
 we are experiencing something really
 unprecedented in DX history. After
 working 5 new ones in the BARTG last
 August, there was the St. Paul Island
 DX-pedition, then more for a total
 of 16 new ones worked in 6 months!
 Counting all of the new countries re-
 ported QRV or upcoming soon, there
 are about 36 more plus X number that
 he has never heard about. Carl also
 reports a QSO with a 16 year old who
 has been a Ham for 3 years and is now
 working on RTTY DXCC. The latest
 country totals from Carl indicates
 150 worked, 127 confirmed. Keep up
 the good work Mr. Steavenson! Jean,
 F8XT is really going to town however,
 he states he has 205 mark and says
 it is hard to find 'new ones'. I can
 imagine that it would be hard to find
 new ones!

Bert, N1BNK, reports the following
 heard: A4XJQ, Tony; ZK1XL, Ron; and
 CE3FCF, Carlos on the air, with

Carlos being the only RTTYer in Chile
 on AMTOR. ZS1KT, Nico; and LU4EGE,
 Juan were spotted on AMTOR also.
 ZS2FP, Piet; SP2WCY, Kit and TI2AEB,
 Armando were heard during the early
 hours as well.

A special thanks go out to all of
 you that sent in info for this months
 column, K6WZ, JA1JDD, WA6PJR, N4FJL,
 JR2CFD, W5DOZ, VK2SG, W1DA, N1BNK,
 and WA6VZG. Take care and best of DX
 until the next time.

73, Joe, AJ0X....SK

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Options. The EX241 marker and EX242 FM module, plus a wide variety of filters for sharp audio reception are available.

Filter	-6dB Width	Center Freq. MHz
FL45	500 Hz	9.000
FL53A	270 Hz	9.000
FL44A	2.1 KHz	0.455
FL52A	500 Hz	0.455
FL54	250 Hz	0.455

The IC-745 is the only transceiver today that has such features standard...the number of options and accessories available...and such an affordable price.



IC-745 Shown with IC-PS35 Internal Power Supply.



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7451283

MSO'S



by Dick Uhrmacher, K0VKH

INSTALLMENT #7

Hi Gang! One of our more famous circus companies has been known as "The Greatest Show on Earth", but I venture to say that the Dayton Hamvention must at least rank second. Another fantastic Hamvention has come and gone this year, and it was nothing less than exciting to see all of our RTTY friends, acquaintances and associates. The weather cooperated fully, the convention floor was knee-deep in manufacturers with every imaginable electronic goodie to tempt attendees, and overall it was one of the more enjoyable sessions of the Dayton Hamvention than I can remember in quite a while.

I'd like to take this opportunity to welcome Joe Wood, AJ0X, as the new DX Editor for the RTTY JOURNAL. Joe is recognized as one of the premier DX operators in the world, and most certainly brings a wealth of talent and experience to the DX enthusiasts and readers of the RTTY JOURNAL. Joe also maintains a work-horse MSO on the National Autostart Frequency (14 087 750 Hz), which contains up to the minute information concerning DX and other Ham Radio events on a worldwide basis. If you're into the DX scene, then check Joe's MSO to get the latest.

The RTTY Forum at the Dayton Hamvention was a sell out this year! Not only did we have new facilities in which to meet, but attendance was high compared to years past, with standing room only. Bill Henry, K9GWT provided an excellent overview of RTTY History and operating techniques. Joe Wood, AJ0X, painted the DX scene in colors that made us all want to rush home and start programming "CQ DX" into our machines. Dee Crumpton, N6ELP talked about the RTTY scene,

including the RTTY JOURNAL. And yours truly gave a few minutes of information and operating procedures on MSOs. A question and answer session followed, in which quite a few good points were brought out, some of which will be included in this month's column.

The National Autostart Frequency again this year, hosted a RTTY Dinner at the Imperial House North, with Gaylord and Louise Crawley (WB8ICL and WA8JIB) acting as coordinators and hosts. This annual affair grows each year. MSO Sysop's from several frequencies attended, and if you're planning on attending the Hamvention next year, we'd like to see you at the RTTY Dinner. This author was extremely pleased to be inducted into the world renowned society of "OH-WAH-TAH", including the prestigious "Big Gun Award"! Thanks to Jerry, WA1IUF, and the other members of the 14.097.500 Autostart Group!

It was my pleasure to visit with Paul RindaIdo, W4RI, Senior Technical Editor of QST magazine, and Technical Department Manager for ARRL, at the HAL Communications Hospitality Room. We discussed several items of interest concerning MSO's spectrum utilization, frequency coordination, and operating ethics and procedures, and I found that much to my liking, the ARRL's vision as to what the future holds for MSO's was, what this author had been forecasting (and striving for) for quite some time. Paul expressed the concern that particularly on 20 meters, we share a very small segment of the spectrum for RTTY operations, and that our efforts should be channeled into ways and means of sharing this spectrum with all RTTY interests. This means COOPERATION on everyone's part, as I'm no less than positive that the Ham interested in

RTTY rag-chewing derives just as much pleasure from that activity, as does the MSO user/operator from their activities. It's only through common courtesy, well developed operating skills, and a willingness to share our limited spectrum, that digital communications will grow by leaps and bounds, and show these immense strides in technological improvements seen in the last five years or so. Packet radio, digital communications via satellite, enhanced sophistication in CBMS's, (computer based mailbox systems), etc., will make our present systems seem outmoded in the near future. But, the over-riding concern of all, is that we MUST cooperate with others using this limited spectrum, and share with others who may or may not have our same goals in mind.

I encourage each person interested in RTTY, and especially those involved in MSO/CBMS operations, to carefully read the May 1984 QST, the "Moved and Seconded..." column, starting with the last column on page 59. This report of the ARRL Ad Hoc Committee on Amateur Radio Digital Communications contains some very interesting and vital information, with great insight on the ARRL's position on use and operation of these systems. Particular note should be made of the ARRL's petition to the Federal Communications Commission, to "authorize, specifically, automatic control of digital communications on all Amateur bands....". Several proviso's are attached to this petition, primarily do to with reasonable and adequate safeguards to prevent accidental or purposeful mis-use of these systems. We've all seen what we consider mis-use of these wonderful machines, and from this author's viewpoint none of the ARRL's suggestions are too far out

SINGLE OPERATOR ALL BANDS

Peter Rodmell, G3ZRS * 145520
 Bo Stjernberg, SM6ASD * 141120
 Jorgen Dudahl, OZ1CRL * 136300
 John Johnston, W3BE * 132480
 Barry Gardner, W3FV # 118340
 Perozzo Etienne, ON7EP * 94205
 Buraro Detudamo, C21BD * 90475
 K.L. Miller, VE7YB * 87400
 Vance Fauver, WB5HBR 87360
 Andy McLellan, VE1ASJ # 79395
 Roy Gould, K7IN 77015
 Carl Steavenson, K6WZ 84240
 Dave Earnest, HZ1AB * 67500
 Mort Toussaint, N7AKQ 64800
 Dan Kernan, WA2KOK 60160
 Ulli Savolainen, OH2BDN * 58650
 Roger Simpson, NQ6C 56000
 Talma de Barros, PP7GV * 54400
 Mrs. E. Farida, LX2EL * 53865
 Alte Lofgren, SM7AIA # 53235
 Bill Snyder, W0LHS 44745
 Clark Constant, W9CD 41600
 Denis Mahoney, VE6ZX 40590
 Jesus Dominguez, EA1AEB * 37675
 Pepe Ferrer, EA5CVR # 33280
 John Lee, K6YK 31850
 John Possehl, W3KV 31255
 Walt Amos, K8CV 30805
 Jose Stragia, LU8ESU * 30550
 Jack Reed, WA7LNW 30195
 Lars Kjellgren, SM7LSU 28575
 James Swan, VK2BQS * 23690
 T.H. Holtby, VE7VP 22560
 Willy Rogg, HB9HK* 22035
 Werner Ludwig, DF5BX * 19110
 Victor Holyoake, G4OJJ # 17415
 J.O. Thomas, GW3EHN * 17000
 Chuck Prindle, W6JQX 16740
 Robert Miller, KB9SU 16720
 Jan Kus, SP9BCH * 15120
 Bob Lewis, N4GXP 14070
 P.M. Hendrickx, PA3DBS * 13650
 Jules Freundlich, W2JGK 12420
 Edwin Cortes, WP4AVW 10230
 John Orton, WA6BOB 9990
 Charles LeGrande, AH6CS 9440
 Dennis Grinnell, G4MKO 9000
 Greg Hanson, KA1ZX 8835
 Armando Mateos, EA1AAO 8400
 Arpad Sarkezi, YU7AM * 8370
 Kurt Wustner, DE1KWD * 7750
 Wolfgang Ferrling, DL0DO # 7250
 Askene Vestermarie, OZ1GRF# 6750
 Jake Meyer, HP1XUL * 5800
 Elliot Hamilton, WA9JIQ 5720
 Carlos Laroza, PY2CAR # 5460
 Zdenek Kasek, OK2BFS * 4590
 Roger Bjerke, KC0UM 3600

Juan C. Montalvo, EA2AOV 3465 Radioklub, OK3KYR 30140
 Neal Morris, K0TIV 3255 Guernsey ARC, GU3HFN* 12025
 Wagner Vlado, YU2CB # 1625 Radioklub J.Murgasa,
 Kryzys Ulatowski, SP2UUU# 1155 OK3KJF 6800
 Diet Platthaus, DJ6QO 1000 Central Radioklub,
 OK3KFV 5500

* denotes first in their country

denotes second in their country

MULTI-OPERATOR 20 METERS

Sodermans Regemente,
 SL5AR * 61920

SINGLE OPERATOR 20 METERS

Dima Slyusarenko, UT5RP* 84240
 Larry Bruggensmith, KI4BQ*39015
 Jurgen Bieber, DL9MBZ* 15250
 Tomas Asenjo, EA4SB* 14720
 David Smith, W6NCR# 12950
 Dusi Miroslav, OK1AWC* 12000
 K. Tetteiaar, VE7ATH* 11220
 Paul Clifford, WA2AXO 10880
 Leslie Harper, W8CFJ 9990
 Joe Hungate, K8OM 7685
 Kenneth Cote, VE6BEV# 7155
 Kari Syrjanen, OH5YW * 7140
 Richard Kriss, KD5VU 3630
 Ari Rodrigues, PT2BW* 3225
 B. Strandberg, SM6IJF* 1260
 Gary Moles, ZL2AKI* 1100

Check Logs: N6ELP, WB6AQR, Y25DL and F6AUS

Comments: "Due to new TS-930S giving an intermittent RF output under steady key-down condx and the breakdown of my traps, I regrettably had to pull the switch" ZL2AKI "This is my first contest so hope it is OK. The 'dupe sheet' had me baffled". VE6BEV. "This is my first RTTY contest-enjoyed it very much-hope condx will be better from this QTH next time" VE7ATH.

"Propagation, as usual" always seems terrible here, especially since we at the bottom of the 11 year sun cycle, but I felt that the bands were quite good this weekend. I seemed to get on top of the 'ZS Mail box' for only a short while..Too bad I could not catch anyone there in the contest Many more stations were in the test this year. Had an excellent time and look forward to next year at the bottom of the sun cycle" N7AKQ..

"Nice contest, many sigs from Europe"WA2KOK

"My first RTTY contest. I had my greatest thrill when I worked my first RTTY DX"K0TIV

"All my family are QRV on RTTY now but I did the contest. Just got my license in October". SP2UUU Christopher....

"The opening of 15 meter band was the only thing that prevented a disaster. The legality of FSK on 7050 to 7100 is in doubt due to the VE phone assignment there so no attempt were made. On 80 the skip never got much farther east than Ohio..to the west it was open to KH6 but nothing was heard. On the whole enjoyed the contest, picked up 2 new countries:UKO and GU." VE7VP...

"condx were not favorable at the start of the contest (0300 local) 16 QSO's in four hours. I heard no Africa, but did work all

SINGLE OPERATOR 15 METERS

Piero Giacomelli, IK5CKL* 29150
 Hiroaki Kubo, JR6YAH* 28380
 Norman Buckley, KC7RG* 10880
 Miguel Quijano, WA2HLV# 5610
 Roger Thering, KE6T 4995
 Hirofumi Kondo, JF2PZH* 4725

SINGLE OPERATOR 10 METERS

James Sladek, WB4UBD* 1890

MULTI-OPERATOR ALL BANDS

Mike Bottema, K8EX* 166950
 Pasquale Ventresca WB3FIZ # 102225
 Radioklub PRI ODPM* 70725
 Leicester Polytechnic Society-
 G3SDC* 65995
 Greg Haines, WB4PRU 48900
 Radioklub Zvazarm,
 OK3KGI # 42380



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hh:mm:ss

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- T. AMTOR
- U. AUTO AMTOR
- X. AUTO CALL
- C. COMMANDS
- O. OPTIONS

OPTIONS MENU SCREEN

hh:mm:ss

- I. CALLSIGN ??????
- S. SELCALL ?????
- T. ARQTIMEOUT 30
- U. USOS ON
- M. MORSE FILL (BT) OFF
- R. RTTY SYNC (NUL) OFF
- A. AUDIO FEEDBACK OFF
- C. AUTO CR ON
- L. AUTO LF ON
- B. BEACON RECORD OFF
- W. WRAP-AROUND ON
- K. CW BREAK-IN OFF
- O. OUTPUT MODE WORD

COMMAND MENU SCREEN

hh:mm:ss

- L. LOAD
- E. EDIT
- M. MOVE
- S. SAVE
- X. SET XMT BUFFER SIZE
- C. SET COLOR
- T. SET TIME

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Given a cost per unit budget for the CP-1, Al designed as much performance as possible into the Computer Patch, including a unique new tuning indicator, referred to by one of our customers as the "Dead Eye Dick" tuning indicator. This indicator is ideal for RTTY and CW, in that it is both fast to tune and (within 10 Hz) as accurate as scope tuning. It also performs under poor signal to noise conditions in which other indicators provide no useful data.

Al's variable shift tuning was designed to move the space filter center frequency from 2225 Hz to 3125 Hz without changing the bandwidth (by varying the Q of the filter). All this is accomplished using a precision ganged potentiometer to assure proper tracking of the multiple filter stages. We could have used a pot costing a tenth as much by simply using a two-pole filter design, but we feel the advantage of a sharper filter reduces the noise bandwidth significantly and allows the variable shift control to be used like passband tuning for extra elimination of adjacent channel interference.

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CONTEST CONTINUED

other continents. Had a long path on 20 and picked up a few new states. Actually have more confirmed on 160 than anything else..HZ1AB..

"Wonderful contest". W3BE...

"My first RTTY contest, very nice. made nice QSOs with everyone and the condx were good." PA3DBS....

" almost WAC on 10 meters." K6WZ....

" Have been on RTTY for 3 months and having a ball, sorry it took 25 years to get into RTTY." KT1N....

" My first RTTY contest Enjoyed it very much." EA5CVR...

"enjoyed the contest very much, will have to get an amp for next year, low power on 40 is no answer, and 80 was a complete wash out." VE6ZX...

"Good test." ON7EP Steve...

"The afternoon hours on 20 and 15 meters exceeded everything I have experienced so far in RTTY contesting. What fantastic activity. Almost 20 contacts per hour. 10 meters was good but little used. Looking forward to seeing you in the next test and in the next and...." Bo, SM6ASD..

"My very first contest," WP4AVW/EA4..

"tnx fer test, am ready for 1985"... CT1AV....

"QRT on 28 and out of test due to power failure. Know I missed many... sorry. Will do better in 1985" GW3EHN

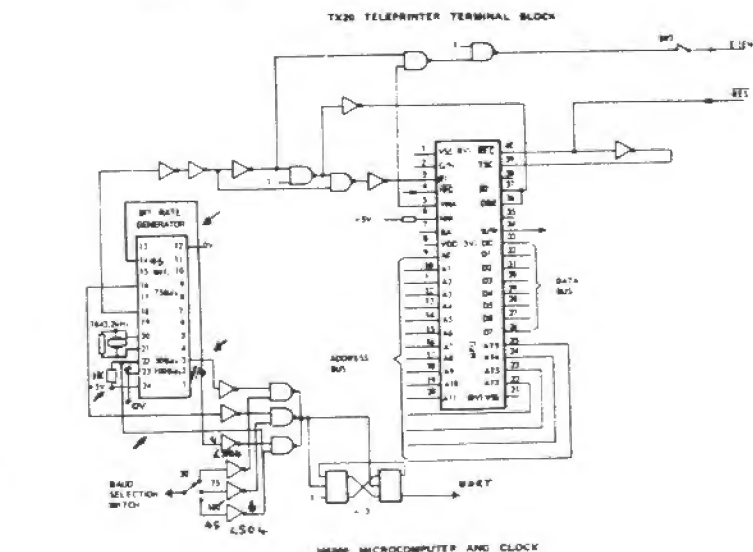
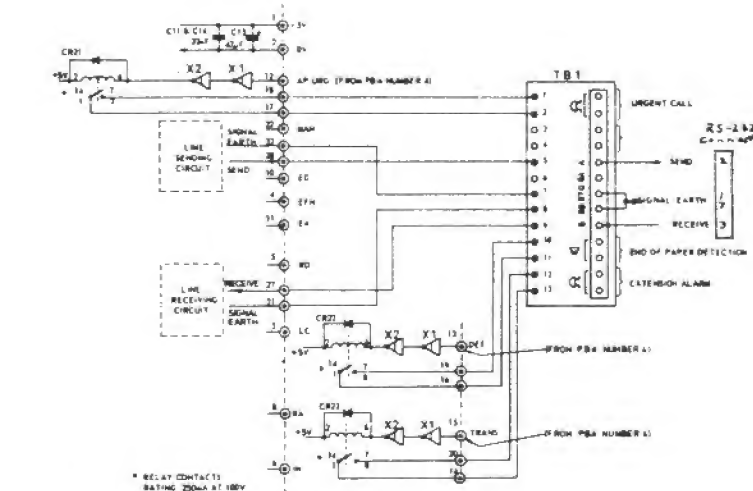
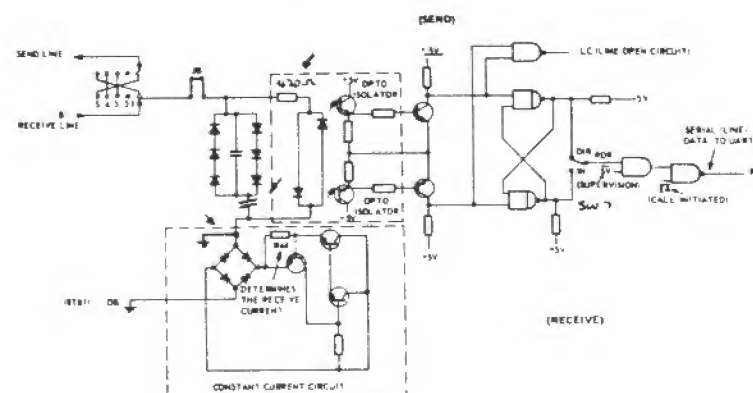
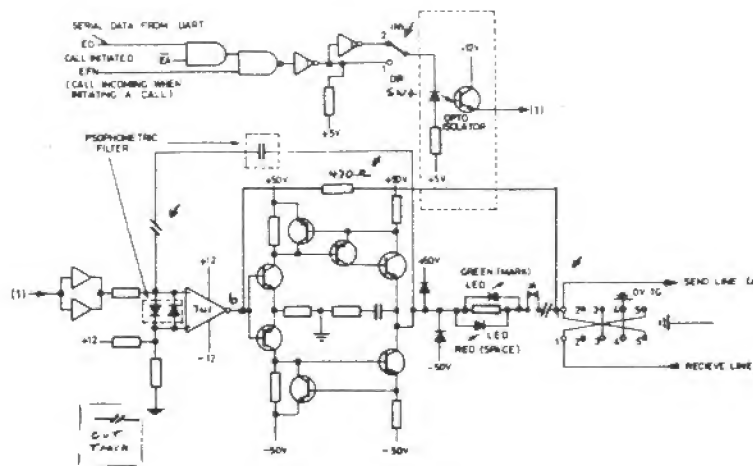
"Glad to activate 'GU' on RTTY, a rare one on RTTY." GU6JST.(GU3HFN)...

"My wife,KA3GIK and I throughly enjoyed the contest. Good DXing" WB3FIZ

"This was our 2nd year, not as many DX countries this year,still a good time was had by all.See you 1985,K8EX

"It was fun, a lot of work, a lot of headaches (compiling the test results) and would do it all over again anytime (almost!). See you all next year???? N6ELP and RTTY JOURNAL staff

NOTE: Contest logs were received long after the closing date. Two were received on June 5th and used for check logs only. Too bad one had a very good score...



Here are the schematics for the article last issue on Modification of the Sagem TX-20 For RTTY BY Ian Eddy, VK2IE, C/P.O Waterfall, N.S.W., Australia 2233. If you would like a copy of these schematics in a much larger version (each on 8 x 11 sheet) please send \$1.00 to the RTTY JOURNAL office with a S.A.S.E. and we will be happy to send them to you. The are beautiful, but unfortunately we did not have any more room in this issue for them..De Dee,N6ELP.

by GEORGE

HITS & MISSES

GEORGE HAMMON, WA6GQW
14215 Pecan Park Lane Space 73
El Cajon, CA 92021

In my column last month, I discussed keyboard data entry. The importance of consistent data entry was stressed. This month I will start out with the report entry.

A convenient feature built into the "Logger" is a repeat entry. A repeat of the last data entered by a null response at the prompt line for these fields. This feature coupled with the default values for RST makes contest, field day etc. entries quite fast and simple.

Once a complete log entry has been made, you will be given the opportunity to edit that entry before it is written to the data base. An edit prompt will appear near the bottom of the screen.

Select the field to change (if any) by entering the corresponding number of the field which appears at the far left of the screen. Edits are made just like the original entry. When all fields are as you wish, make a null response to the edit prompt. The log entry will be recorded in the data base and a fresh entry prompt screen will appear. When you are through making entries for the time being a null response at the station prompt line will terminate the function.

Reading an extract file is the method by which data may be "batched" into your data base. Instructions that appear on your screen must be followed. No intervention is required or is possible. There are no processing options. All data on the extract file will be loaded except in the case where the data base becomes full before loading is complete. This function and the write extract

file function are normally used to split a large data base into pieces for whatever purposes the user desires.

When it is desired to change only a few entries or where the changes to be made are unique to each entry, this function should be selected. The prompt screen will appear which is identical to the keyboard add screen. You should respond to the station prompt with the ID of the entry you wish to edit (up to ten characters followed by a return). The "Logger" will check the data base for the existence of the specified record. Failure to locate it will result in a highlighted advisory near the bottom of the screen. If found the contents of the specified record (log entry) will be displayed. At this point a second prompt line will appear near the bottom of the screen.

(H) C (S)kip (P)rocess (R)eturn

The "Logger" supports duplicate station specifications. Therefore, the user should ascertain the displayed record is the one intended. If it is not, enter (S) for skip and the program will resume searching for additional records with the same ID. A fresh prompt screen will appear if none is found.

Once the intended record is located and displayed enter (P) for process. The "Logger" will respond with an edit prompt as in keyboard add. The station ID cannot be changed. Log entries with incorrect station ID's must be deleted and re-entered. Edits are made in an identical manner with keyboard add and are completed by making a null entry at the edit prompt line.

Prior to selecting (P) for process, two other options may be exercised: (H) for Hard Copy (R) for return

(H) causes the current record values as displayed on the screen to be sent to the printer. This is useful in making a 'before' image of the record about to be edited.

(H) causes a return to the sub menu without further processing. This is useful in escaping back to the menu when a record has been retrieved and no changes are desired.

Writing extract files is a powerful function which will create a standard DOS 3.3 sequential text file of the qualified data base records. This file may be read by any Apple soft program, thus giving the user the ability to do external processing on his records. If he wishes, the "Logger" will reload an extract file into the data base using the facilities of the add function. The record format of the extract file is as follows:

POSITION	LENGTH	FIELD
1	10	station
11	4	date
15	4	time
19	4	band
23	4	mode
27	3	RS(S) sent
30	3	RS(T) received
33	25	comment
58	1	QSL status

When creating an extract file, the "Logger" copies the selected records from the data base to the extract file, rather than moving them, that is, the original records remain in the data base.



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6. UT5RP	1,399,380
7. SM6ASD	1,002,168
8. WB5HBR	991,942
9. IK5CKL	944,256
10. HZ1ABI	916,176
11. IØZSG	703,438
12. K1LPS	696,624
13. K6WZ	599,400
14. W3KV	595,526
15. VE7YB	502,658
16. JA1BYL	487,180
17. JR2CFD	464,172
18. W6JOX	402,760
19. VE2JR	381,870
20. I8JRA	358,450
21. VE8CM	226,384
22. VE2AXD	145,996
23. WB4UBD	143,500
24. VE3FJB	118,888
25. YO8FR	104,890
26. W2KHQ	86,700
27. GW4EHN	56,904
28. VE7EJ	42,624
29. KD8GC	39,056
30. SM7LSW	38,810
31. DF5BX	36,920
32. I5FZI	36,647
33. KE6T	35,500
34. TI2DO	17,365
35. NN6F	14,780
36. Y7GWN	8,736
37. JF2PZH	7,272
38. PY1DCB	7,104
39. SM7BGE	4,310
40. VE7DDQ	536
41. W8TCO	260

Multi-operator

1. LZ1KDP	3,107,912
2. VE3UR	438,200

S.W.L.

1. DE1GMH	162,240
-----------	---------

Check Logs

W1ZXA, SM7AIA, Y2SDL, VE3GQV, G4EMT..

VE7YB- "President CRRL Award" for
Canadian High Score.

K4AGC- "RTTY JOURNAL Award" U.S.A.
high score. Leo from Vienna, VA.....

LZ1KDP- Multi-Operator High score
"CARTG member plaque".

DE1GMH- S.W.L. Plaque "CARTG".

K4AGC- 25 contacts 2-way RTTY with Canadian stations plaque-VE2JR.

C.A.R.T.G "MAPLE LEAF" SWEEPSTAKES
SATURDAY OCTOBER 20th 0200 TO MONDAY
OCTOBER 22, 1984 -- 0200 GMT

No more than 30 hours of operating is permitted for single operator stations. Non-operating periods can be taken at any time during the contest. Multi-operator stations may operate the entire 48 hour contest period. A summary of operating times must be submitted with each score.

Bands: 3.5, 7, 14, 21 and 28 MHz.

CLASSIFICATIONS: single operator (one transmitter) Multi-operator (one transmitter) S.W.L. operator.

MESSAGES: To consist of RST, GMT time and Zone.

EXCHANGE POINTS: All two-way RTTY QSOs with ones own zone counts two (2) points. All other contacts will receive points as listed on CARTG Zone Chart.

MULTIPLIERS:Country status as ARRL Countries list, KL7, KH6, W/K, VE/VO, VK districts counted as separate countries. Stations not to be counted more than once on any one band. Additional contacts counted on different bands. One's own country counted as a multiplier.

SCORING: Total exchange points X
number of countries contacted X
number of Continents (maximum 6).
Two hundred (200) bonus points added to final score for each Canadian contact.

LOGS: Logs to contain band, date, times GMT, RST, Callsigns, Exchanges sent and received. Use separate log for each band. Multi-operator logs must

be signed by each operator. Send SASE or IRC's to CARTG for Log sheets and Zone charts, etc. Logs must be received before January 1, 1985 to qualify.

AWARDS: Engraved plaques for top ten scores, Green RTTYer, Top Canadian, and station contacting the most Canadian stations, top multi-op score and SWL high score.

Canadian Amateur Radio Teletype Group
VE3RTT, 85 Fifeshire Rd., Willowdale,
Ontario, Canada M2L 2G9.

GWEN BURNETT, VE3AYL

It is with sadness that the RTTY JOURNAL reports that Gwen is looking for a replacement to continue the work of the CARTG, especially the bulletin. Gwen has been the guiding light of CARTG for the past fourteen years and says it is about time for her to retire. Anyone interested in trying to do the job Gwen did so well for so long, should contact Gwen at the CARTG office address given above.

Gwen, you will always be "A Young Lady."

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DARC "CORONA" 10 METER RTTY CONTEST

SCHEDULE: September 1st-1100-1700 UTC
November 3rd 1100-1700 UTC

CONTEST CALL: CQ Corona Test

ENCHANGE:RST/QSO#/Name (US stations
will also give their state.

POINTS: Each station has to be contacted only once. Each complete RTTY-QSO counts for one (1) point.

MULTIPLIERS: Use latest WAE and DXCC list, count each VE/VO/VK call area and each US state as a separate country.

SCORING: Total QSO points X Total multipliers.

CLASSES:A=single/multi-operator;B=SWL
LOGS:recommended using official log
forms. Logs to contain:Name, Call,
and full address of participant,
Class, time in UTC, exchange and
final score.

DEADLINE: Each entry must arrive within 30 days after the test.

Manager: Klaus Zielski, DF7FB, POB 11-47, D-6455 Erlensee, West Germany.

AWARDS: For the leading stations in classification.

ADAPTING MODERN TRANSCEIVERS TO FSK

Carl Steavenson, K6WZ
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Sylmar, CA 91342

In the May-June issue of the RTTY JOURNAL, Dick, KOVKH, asked for inputs regarding adapting modern transceivers to FSK, one advantage being that sharper I.F. filtering is available with some units when operated in the FSK or CW (?) mode, as opposed to the LSB mode.

I don't even have an immodern transceiver but I see no reason why the usual diode shifter should not work just as well with a solid state VFO as it does with a vacuum tube VFO. For the many Hams not having access to past JOURNALS, a diode shifter is sketched following the article.

The next question might be one of where to get the voltage to key the diode. Most terminal units developed for use with teleprinters should provide a small keyed voltage, probably divided down from the loop supply.

But it appears that the great majority of operators are using some form of commercially produced interface unit and a computer.

I recently added the AEA CP-1 and a Commodore to the shack and, after a few successful trials using the AFSK output, I still wasn't comfortable hearing even the low level carrier and unwanted sideband from the 75A-4 receiver. Having always operated FSK, the two modifications described in the AEA manual were tried with the following results.

The first mod given in the manual involves adding a 2N2222 and three resistors plus cutting the track to the DEMOD OUT jack, J5 (see also Product review, QST April 1984). This mod worked for the author of the QST article and two other people I worked and may work fine for many others. But it does not provide a keying voltage--only conduction (high) on mark and low on space. The 2N2222 keyed both my 32S-3 and KWS-1 VFOs perfectly without the need for a diode, but the shift was "upside

down" and there was need to be concerned about stray capacity effects from the connecting leads. Another inverter stage at the VFO would have given proper shift and provided some degree of isolation.

The other modification given in the manual is much simpler. It calls only for lifting the middle (base) lead of Q13 and connecting the lead to pin 2 of the TTL jack, J6. That is all... unless the track has been cut, as I mistakenly did. But with a solder bridge across the cut track, about 4.4 volts mark and 0 space are available at the DEMOD OUT jack. Adjusting the trimmer capacitor shown in the schematic gives the proper shift, spur-free.

In case someone wants to continue using the FSK voltage from an existing T.U., as I did, (to permit also using machines for hard copy and tape transmissions), the mark high space low from the CP-1 turned out to be the opposite obtained from the old Mainline TT/L. This called for the diode to be reversed in polarity for the CP-1 keyer. Separate keyers were also necessary because of the different levels of keying voltage provided. Each keyer is adjusted to give essentially the same shift and no difference is reported except the keying from tape or TTY keyboard is slightly "harder."

AEA also describes modifications for operating a printer directly from the CP-1, but I have not tried that.

I have no idea whether the diode shifter approach will work with synthesized VFOs but do know that an ordinary crystal oscillator can be shifted in the same manner and may require a combination of inductance and capacity as with a VXO.

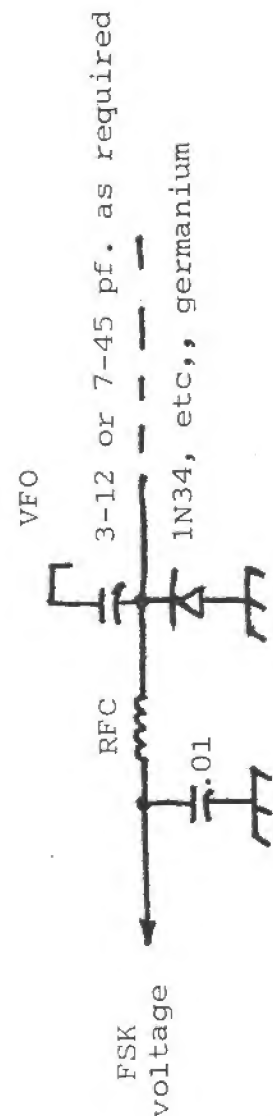
A snag to be recognized is the fact that many stations are not equipped with a separate receiver or monitor, or a counter with which to make shift adjustment convenient. I've been able to help four or five operators adjust their AFSK during QSOs using only the 3AP1 built into the T.U. Others were not able to make the adjustments

immediately.

Perhaps someone can come up with a one-or two-transistor regenerative monitor (receiver) that could be used to get the shift into the ballpark.

The CP-1 modifications discussed apply to serial numbers 1100 and higher. Mods for earlier serial numbers are slightly different. (My unit is 4811). I wonder what the beginning serial number was?

Will be happy to answer any questions that I'm able to but an S.A.S.E will be appreciated.



VIC-20 REPAIR: -1

Harold Thurlow, K8BCV
939 Kaypat Drive
RR#1 Hope, MI 48628

Here are a couple of repairs that I made to my Vic-20.

Recently, when it quit and the screen went blank I removed the top section by taking out the three screws on the bottom, tipping up the keyboard assembly, then when turning on the Vic I checked the voltage at the center capacitor and it showed about 11 volts. I then checked the 5 volt line and it showed about 3 volts. I then removed the regulator (it looks like a large metal transistor). To remove the board, remove all of the cable plugs (they are polarized so don't worry about putting them back wrong). Next carefully peel up the copper tape from the circuit board and leave it intact, attached to the VIC. Now take out the board mounting screws, lift out the board and take the voltage regulator. BE VERY CAREFUL in taking out the screw that goes through the rectifier block as I ruined the screw in mine and had to replace it with a slightly larger one and had to drill a larger hole for it in the rectifier block. After removing the heat sink parts unsolder the pins on the voltage regulator by using a small wattage pencil iron and copper solder wicking to soak it up. The wicking will only absorb a small of solder at a time so clip the saturated end off and continue until the holes are clean and the regulator will drop out of the board. Put a new 1 amp regulator in and continue to assemble the VIC. Before you put the copper tape back on the board put the mounting screws in. You can get a replacement regulator at Radio Shack and other suppliers.

VIC-20 REPAIR:-2

The second repair I made was because of a mistake I made. I accidentally reversed a plug I used for a homemade interface unit and promptly ruined one of the MPS 6522 support chips. To check them out if the recorder does not work or load right,

switch them around. If you get different results then one is bad. Get a new one and find which one is bad by replacing each of the chips, one at a time. You will see which is good, unless they are both bad, an unlikely situation.

I hope this information is useful.

Here follows a sketch of the regulator and how the wicking is used for unsoldering. Do not use a soldering gun as the magnetic field may ruin the other chips.



Bottom Views

1. 11 volts DC in
2. 5 volts regulated out
3. ground

FROM PAGE 8

MSO COLUMN CONTINUED

of line. Some may require resourceful thinking and engineering, but in the long run will provide the safeguards necessary.

Recent information concerning misuse of MSO's, has shown that the FCC will not tolerate business communications, or other inappropriate communications, written to, or relayed by, MSO/CBMS's. Significantly, it was the MSO/CBMS Sysop who was cited, not the individual who originally filed the message, the remote operator who read the message. Take heed...if it's a message that should not be stored in your MSO, delete it without question, as the SYSOP will be held responsible. We all know what constitutes a business message, or other inappropriate data, and traditionally Amateur Radio can point with pride to a highly successful system of self policing. So, ask yourself the question, "Would I want this traffic in my MSO?", and if not, then don't file it.

MSO OF THE MONTH: This month we feature the W0LDO RTTY Repeater, which is sponsored by the St. Louis Amateur Teleprinter Society, St. Louis, MO. This repeater is located near Hillsboro, MO., and consists of a completely solid state repeater, and an "INFO-TECH" M-700 Microprocessor Control System and Mailbox. All RTTY operators are welcome to utilize this system, and for detailed information contact Bill Kordik, W0LDO. This full featured Mailbox system is highly sophisticated, and has a "Help" feature for the novice user. The Teleprinter Society meets once a month, has 55 members, and encourages anyone interested in RTTY in the St. Louis area to join them! Thanks to Bill, W0LDO, for telling us about this fine system.

MSO HINTS OF THE MONTH: As we see more of the CBMS's come into service on the various Ham bands, it's apparent in many cases that the software author hasn't spent a lot of time with an active MSO. Many of the remote users still prefer to monitor MSO traffic with hard-copy, and some of the software being written has

enough carriage return/line feeds (CR/LF) imbedded in them to pretty well bankrupt the average Ham, as his printer spits out copious quantities of blank paper. It may look nice to see that data scrolling up the video monitor at something less than the speed of light, but be considerate of the guy using the printer, and delete those unnecessary line feeds! Also...on-the-air time is precious. If your "help" file, or "Brag" list runs like Funk & Wagnels Dictionary, consider cutting it down to some reasonable size. My experience is that "smaller is better" in that department, as most Hams are smarter than the average bear, and only need a little prompting to catch on to how to use your system!

Do you have a favorite MSO, or CBMS?? Some exciting RTTY MSO happenings in your area you'd like to tell the world about? Well, we'd like to help...so just drop me a line at the above address or to the RTTY JOURNAL, and we'll sure spread the word. That's it for this month. Enjoy RTTY! DE DICK, K0VKH.....

30 words \$3.00, additional words 5 cents each - Cash with copy. Deadline 1st of month for following month.



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